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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/823,625	04/14/2004	Jae-cheol Lee	030681-648	4636

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EXAMINER	
BUEKER, RICHARD R	
ART UNIT	**PAPER NUMBER**
1763	

DATE MAILED: 04/19/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/823,625	LEE ET AL.	
	Examiner	Art Unit	
	Richard Bueker	1763	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *30 January 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-6,10-20 and 22-34* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-6, 10-20 and 22-34* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Claims 16, 17 and 30-34 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The phrase "the source gas does not transgress the powder source" was not in the specification as filed and is new matter. Regarding claim 17, it is noted that "impinge" is defined as "to touch". Applicants' specification as filed did not state that the source gas (i.e. vaporized powder material) does not touch the powder source. Regarding claim 30 the specification as filed did not describe "the outlet of the gas inlet tube is in the external container above the highest point of the internal container". Also, this claim 30 limitation appears to conflict with the claim 1 recitations of the outlet of the gas inlet tube.

Claims 16 and 30-34 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The claim 16 phrase "the source gas does not transgress the powder source" is unclear. Regarding the claim 30 limitation of "the outlet of the gas inlet tube is in the external container above the highest point of the internal container" this limitation appears to conflict with the claim 1 recitations of the outlet of the gas inlet tube. In claim 31, it is unclear if the phrase "an upper portion" in line 6 is the same as "an upper portion' in line 3. Also in claim 31, the phrase "oriented perpendicular from the direction in which the powder source is located" is unclear,

vague and indefinite, because it is incorrect to say that the powder is located in a direction. The powder material is a 3-dimensional body that extends in all directions.

Claims 1-4, 10-12, 15-18, 22, 23 and 25-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sandhu (2003/0072875) taken in view of Pawlyk (2,704,727), Gregg (2004/0016404) and Nickle (2,059017). Sandhu (Figs. 3 and 5, for example) discloses a powder source vaporizer in which the powder is located in a lower portion of a container, a carrier gas inlet tube is horizontally installed in a middle portion of the container and a cover is installed in an upper portion of the container as now recited in claim 1 as amended. Sandhu's carrier gas tube isn't wound on an outer circumference of the container as claimed. Pawlyk (Figs. 1 and 2) also discloses a solid source vaporizer, comprising a powder source container 4 having a gas inlet 5 and gas outlet 6, a heating unit 3, 29 for heating the container, a temperature sensor 37 and temperature controller (col. 2, lines 35-38), and a carrier gas inlet tube which includes a preheating portion wound on the outer circumference of the container. It would have been prima facie obvious to heat the powder vaporizer container and the carrier gas in the manner taught by Pawlyk, because Pawlyk teaches that his heating means provides a successful way of heating and vaporizing a powder source. Also, Pawlyk (see screen 16 of Fig. 2) and Gregg (see para. 55) teach that it is desirable to provide a screen plate or filter plate inside of a powder vaporizer container for fully dispersing the gas flow and preventing particles from leaving the container. It would have been obvious to one skilled in the art to provide the powder vaporizer container of Sandhu with filter plates and/or screen plates to fully disperse the gas flow and prevent powder from leaving the

container as taught by Pawlyk and Gregg. Also, Nickle (Figs. 2 and 3) has been cited to illustrate the well-known fact that providing more than one filter plate was well-known in the art for increasing the filtering ability of a filter plate. It would have been obvious to one skilled in the art to use more than one of the filter plates or screen plates suggested by Pawlyk or Gregg. The use of more than one plate would have been merely additive and obvious. Regarding claims 10-12, Pawlyk teaches the use of an electric heater 29 to heat the casing 2, but does not discuss the use of a thermoelectric device such as a Peltier device as the heater 29. Sandhu (Fig. 3 and paragraph 28), however, teaches that the heater 108 that heats a solid source vaporizer container can be a Peltier effect heater. Furthermore, Sandhu teaches (paragraph 28) that the Peltier effect heater 108 does not need to be in direct contact with the surface 106, which transmits heat to the solid source. Sandhu teaches that any coupling can be used to transfer energy from heater 108 to surface 106. From these teachings of Sandhu it would have been obvious to one skilled in the art that a conventional prior art heat transfer means such as the heating bath of Pawlyk can be used in combination with the Peltier effect heater suggested by Sandhu. It would have been obvious to substitute the Peltier effect heater suggested by Sandhu for the electric heater of Pawlyk, because Sandhu makes clear that a solid source precursor can successfully be vaporized by employing a Peltier effect heater. Regarding claim 26, Sandhu (see Fig. 26) also teaches that a carrier gas inlet can successfully be connected in a middle portion of a container.

Claims 3, 4 and 28-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sandhu (2003/0072875) taken in view of Pawlyk (2,704,727), Gregg

(2004/0016404) and Nickle (2,059017) for the reasons stated in the rejection of claim 1 above, of and taken in further view of applicants' description the prior art. Regarding the casing recited in claims 3 and 4, it would have been obvious to provide the vaporizer container of Sandhu with a heater and a casing of the type illustrated in applicants' Fig. 1 (labeled "prior art") because applicants' description of the prior art (page 2, lines 19-21) teaches that it was known to be desirable to provide a heater for a vaporizer container, and a heater casing for the heater to protect and thermally insulate the heater. Applicants' Fig. 1 also illustrates the use of a thermocouple, valves and a supply hole as in claims 28-30.

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sandhu (2003/0072875) taken in view of Pawlyk (2,704,727), Gregg (2004/0016404) and Nickle (2,059017), and applicants' description of the prior art for the reasons stated in the rejection of claims 3 and 4 above, and taken in further view of Hillman (5,451,258) or Tsukada (6,319,327). Applicants' description of the prior art states that the purpose of the casing 20 of Fig. 1 is to prevent heat from dissipating. Hillman (see Fig. 1 and col. 5, lines 14-31) and Tsukuda (see Fig. 1, elements 64a and 64b and col. 7, lines 4-39) each teaches that heat can be more completely prevented from dissipating from a heated chamber by providing a layer of thermal insulation on the inside surface of the heated chamber, and in view this teaching it would have been obvious to provide the heated chamber illustrated in applicants' Fig. 1 with an insulation layer.

Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sandhu (2003/0072875) taken in view of Pawlyk (2,704,727), Gregg (2004/0016404) and Nickle

(2,059017) for the reasons stated in the rejection of claim 1 above, and taken in further view of Lei (2003/0053799) and Jurgensen (WO 02/27064). Lei (see Figs. 1 and 2) and Jurgensen (see Fig. 3) both teach the use of a heater inside of a vaporizer container. Jurgensen in particular teaches the use of an internal heater in combination with an external heater. It would have been obvious to one skilled in the art to provide an internal heater for each of the powder holding plates of Onoe because Lei and Jurgensen teach that it is desirable to provide such an internal heater.

Claims 13 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sandhu (2003/0072875) taken in view of Pawlyk (2,704,727), Gregg (2004/0016404) and Nickle (2,059017) for the reasons stated in the rejection above, taken in further view of Sugioka (4,516,527) (col. 3, lines 46-68), who teaches that the thermal contact between a Peltier heating device and a vaporizer container can be improved by interposing a thermally conductive compound or pad. It would have been obvious to use such a thermal conductivity improvement means with the Peltier effect heater suggested by Sandhu, for the desirable purpose of improving thermal conductivity.

Claims 18-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sandhu (2003/0072875) taken in view of Pawlyk (2,704,727), Gregg (2004/0016404) and Nickle (2,059017) for the reasons stated in the rejection of claim 1 above, and in further view of Hiai (5,019,423), Visser (5,322,710) and/or Sielaff (4,861,524) and in view of Onoe (6,270,839). Onoe (see col. 4, lines 35-40) teaches that the primary consideration for choosing a material of construction is that the material be inert to the

powder source material. Also, Hiai (5,019,423) (col. 5, lines 41-44) teaches that a powder source vaporizer container can be made of any material of construction (glass, resin or metal) that is inert to the powder. Also, Visser (the Fig., col. 4, lines 37-39 and col. 6, lines 19-34) teaches that it was known in the art that vaporizer containers could be constructed of quartz because it is a chemically inert material. Also, Sielaff teaches that quartz is an inert substance that is compatible with a CVD precursor source. It would have been prima facie obvious to construct the container of Sandhu of quartz because quartz was known in the prior art to be an inert material. Regarding the stainless steel recited in claim 20, it is noted that Onoe teaches that his container 1 can be made of stainless steel. Alternatively, Pawlyk teaches the use of container 2 as an external container surrounding internal container 4, and the use of stainless steel for the tank 2 of Pawlyk would have been obvious in view of the well-known corrosion resistant nature of this commonly used metal. Also alternatively, Sielaff (Figs. 1 and 2, col. 2, lines 42-62 and col. 3, lines 25-26) teaches that it was known in the art that vaporizer containers could be constructed of quartz-lined metal. Regarding claim 20, it would have been obvious to use stainless steel as the metal of Sielaff in view of applicants' description of the prior art (page 2, lines 7-8) which makes clear that stainless steel was commonly used for constructing sources. Regarding claim 24, Onoe teaches that the powder holding plates should be made of an inert material. Because quartz was known in the prior art as an inert material, it would have been obvious to form the plates of Onoe from quartz.

Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sandhu (2003/0072875) taken in view of Pawlyk (2,704,727), Gregg (2004/0016404) and Nickle (2,059017) for the reasons stated in the rejection above, taken in further view of Muller (3,707,832) and in further view of Hiai (5,019,423), Visser (5,322,710) and/or Sielaff (4,861,524). Muller teaches that frit filters can successfully be made of glass. Also, Hiai (5,019,423) (col. 5, lines 41-44) teaches that a powder source vaporizer container can be made of any material of construction (glass, resin or metal) that is inert to the powder. Also, Visser (the Fig., col. 4, lines 37-39 and col. 6, lines 19-34) teaches that it was known in the art that vaporizer containers could be constructed of quartz because it is a chemically inert material. Also, Sielaff teaches that quartz is an inert substance that is compatible with a CVD precursor source. It would have been prima facie obvious to use a glass frit as a substitute for the stainless steel frit of Gregg because Muller teaches that glass frit can successfully be used as a filter and because Hiai, Visser and Sielaff teach that glass is a material that can successfully be used in a CVD precursor vaporizer.

Applicants' arguments have been considered but are not directed to the new grounds of rejection.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Richard Bueker whose telephone number is (571) 272-1431. The examiner can normally be reached on 9 AM - 5:30 PM, Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Parviz Hassanzadeh can be reached on (571) 272-1435. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Richard Bueker
Primary Examiner
Art Unit 1763